

CLAIMS

1. An insulating material, comprising
a foam web including a polymer matrix and a multiplicity of voids dispersed throughout said polymer matrix, said foam web extending in a length direction and having first and second surfaces, said foam web having a plurality of spaced ribs projecting from said first surface and oriented in said length direction; and

a film including a metal layer adhered to free edges of said spaced ribs so as to define a plurality of enclosed channels extending in said length direction, each of said enclosed channels being delimited by said first surface, said film and an adjacent pair of said ribs.

2. The insulating material as claimed in claim 1, wherein said metal layer includes a continuous layer of metal.

3. The insulating material as claimed in claim 1, wherein said film includes a polymer layer disposed between said metal layer and said foam web.

4. The insulating material as claimed in claim 3, wherein said polymer layer is formed from a polyolefin.

5. The insulating material as claimed in claim 3, wherein said polymer layer in said film is formed from substantially the same polymer as said polymer matrix in said foam web.

6. The insulating material as claimed in claim 5, wherein said polymer layer is formed from polyethylene and

said polymer matrix in said foam web is formed from polyethylene.

7. The insulating material as claimed in claim 1, wherein said metal layer is formed from aluminum.

8. The insulating material as claimed in claim 7, wherein said metal layer is formed from an aluminum foil.

9. The insulating material as claimed in claim 1, wherein said film has a thickness between about 0.5 mil and about 20 mils.

10. The insulating material as claimed in claim 1, wherein said foam web has a density between about 0.5 lb/ft³ and about 15 lb/ft³.

11. The insulating material as claimed in claim 10, wherein said foam web has a density of less than about 3 lb/ft³.

12. The insulating material as claimed in claim 1, wherein said foam web is formed from low density polyethylene.

13. The insulating material as claimed in claim 12, wherein said film includes a layer of low density polyethylene.

14. The insulating material as claimed in claim 1, wherein said foam web has a predetermined thickness between said first and second surfaces, and said ribs project from said first surface by a height dimension, said height dimension being greater than said predetermined thickness.

15. The insulating material as claimed in claim 14, wherein said height dimension is at least about twice as large as said predetermined thickness.

16. The insulating material as claimed in claim 14, wherein said foam web has an overall thickness including said predetermined thickness and said height dimension of between about 0.02 inches and about 4 inches.

17. The insulating material as claimed in claim 1, wherein each of said ribs has a width at a junction with said first surface, and each of said ribs is separated by an adjacent one of said ribs by at least said width.

18. The insulating material as claimed in claim 1, further comprising another film adhered to said second surface of said foam web.

19. The insulating material as claimed in claim 18, wherein said another film is formed from high density polyethylene.

20. The insulating material as claimed in claim 18, wherein said another film includes a metal layer.

21. The insulating material as claimed in claim 20, wherein said another film is formed from the same material as said film.

22. The insulating material as claimed in claim 1, wherein said foam includes at least one additive selected from the group consisting of antioxidants, colorants, anti-corrosion agents, anti-bacterial agents, anti-microbial agents, anti-fungal agents, anti-static agents, UV

stabilizers, fillers, reinforcements, biostabilizers and pigments.

23. The insulating material as claimed in claim 1, wherein said metal layer includes at least one additive selected from the group consisting of antioxidants, anti-corrosion agents, anti-bacterial agents, anti-microbial agents, anti-fungal agents, anti-static agents, UV stabilizers and biostabilizers.

24. An insulating material, comprising
a foam web including a polymer matrix and a multiplicity of voids dispersed throughout said polymer matrix, said foam web extending in a length direction and having first and second surfaces, said foam web having a plurality of spaced ribs projecting from said first surface and oriented in said length direction; and

a metal layer adhered to free edges of said spaced ribs so as to define a plurality of enclosed channels extending in said length direction, each of said enclosed channels being delimited by said first surface, said metal layer and an adjacent pair of said ribs.